BARBERS POINT NAVAL AIR STATION
BARBERS POINT, HAWAII

Engineering Field Division/Activity:	PACDIV
Major Claimant:	CINCPACFLT
Size:	3,822 Acres
Funding to Date:	$29,012,000
Estimated Funding to Complete:	$65,207,000
Base Mission:	Maintains and operates facilities and provides services and material support to operations of aviation activities and units of the operating forces of the U.S. Navy
Contaminants:	POLs, heavy metals (chromium, copper, lead, zinc), ethyl acetate, hexane, PCBs

Number of Sites:		**Relative Risk Ranking of Sites:**			
CERCLA:	21	**High:**	4	**Not Evaluated:**	3
RCRA Corrective Action:	0	**Medium:**	12	**Response Complete:**	4
RCRA UST:	2	**Low:**	0	**Total Sites:**	23
Total Sites:	23				

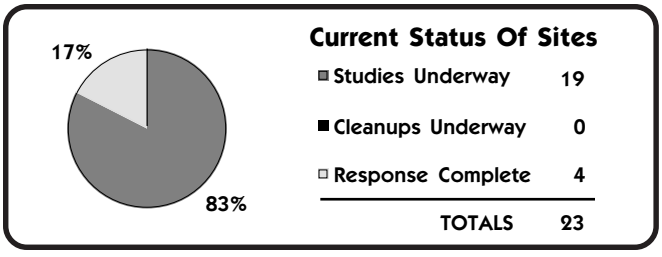
BRAC III

EXECUTIVE SUMMARY

Barbers Point Naval Air Station (NAS) is located on the island of Oahu, 13 miles west of Honolulu, Hawaii. The main base encompasses approximately 3,700 acres on the leeward coast of Oahu. Aviation activities began at Barbers Point in the 1930's. Originally, an emergency landing field, with the added requirements from World War II (WWII), it quickly grew and NAS Barbers Point was completed in 1943. Typical air station operations that contributed to contaminated sites on the facility include disposal pits, a pesticide shop, a landfill, an Oily Wastewater Treatment Plant (OWTP) farm and transformer sites. The primary contaminants of concern, affecting both groundwater and soil, include the chemical additive PCB, heavy metals, petroleum products, pesticides and solvents. Current operations include pollution prevention technologies to prevent further contamination.

NAS Barbers Point is located toward the west end of the southern coastal plain. Streams do not enter or exit the base, and there is only one small pond on the station. The groundwater found on the base is brackish. Due to the highly permeable bedrock and poorly developed soils at the NAS, any landfill leachates or liquid wastes in the ground can be expected to readily migrate to the water table. Two factors mitigate the danger from the migration potential: the groundwater discharge is probably toward the ocean and the salinity of the groundwater precludes its use as a domestic water source without pretreatment. Three endangered plant and animal species and six “depleted” plant species are present on the base. The base also contains several sensitive habitats. The land adjacent to the base, to the north and east, is used for small-scale agriculture and residential developments. Since the air station obtains its potable water from a well two miles north of the station, and most of the site-related contaminants do not appear to have migrated very far from the sites, there is little potential for human exposure to contaminants.

For increased public involvement, a Restoration Advisory Board (RAB) was established at Barbers Point in FY94. A draft of the Community Relations Plan (CRP) was completed December 1994. An Administrative Record has been updated and there is a copy of its index available for viewing in the Information Repository in Ewa Beach, Hawaii. All CERCLA documents are also available at the Information Repository.



Nine CERCLA sites were identified during the initial Preliminary Assessment (PA), completed in FY83. Three sites were identified for further investigation. In FY94, a second PA (the Environmental Baseline Survey (EBS)) was completed. Seventeen sites were identified for further investigation (including six sites included in the initial PA). Three of the sites identified in the initial PA and listed as Response Complete (RC) in FY87 were determined to require No Further Action (NFA). Two sites completed a Site Inspections (SIs) in FY88 and another completed an SI in FY93. Seventeen sites are scheduled for a Remedial Investigation/ Feasibility Study (RI/FS). One RI/FS will be complete in FY96, the remaining sites will complete an RI/FS between FY99 and FY05. Nine Interim Remedial Actions (IRAs) will be completed at 16 sites between FY99 and FY05. Two Underground Storage Tank (UST) site groups were added in FY94, following an Initial Site Characterization (ISC). The Implementation (IMP) phase will be completed in FY98 for one UST group. A Design (DES) phase is scheduled for completion in FY02 and an IMP phase in FY04 for the other UST group site. Cleanup for the UST sites will be complete after IMP.

Five sites (Sites 1, 2, 9, 13 and 20) may require groundwater remediation prior to final cleanup, which is expected in FY03. Site 20 will also require removal of contaminated concrete and/or soil. Most of the other sites at the installation will require some soil removal and are expected to be clean by FY99. Site 19 does not require Remedial Actions (RAs), but will have Long Term Monitoring (LTM) until the property is transferred. Some sites are expected to require NFA following the completion of the evaluations for the Remedial Investigations (RIs) in FY96.

Barbers Point NAS was selected for closure by the Base Realignment and Closure Commission (BRAC III) of 1993. Base closure procedures began in September 1993 with the initiation of the EBS and a BRAC Cleanup Plan (BCP). Operational closure of the base is set for July 1999. The final property transfer date is anticipated to be in FY03, when RAs at four of the sites are completed. Some property is expected to be available for transfer as early as FY96. The BRAC Cleanup Team (BCT) was formed in FY94. A draft Land Reuse Plan for the installation is expected to be complete in FY96.

BARBERS POINT NAS
RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - The island of Oahu was formed by two large volcanoes. NAS Barbers Point is located toward the west end of the southern coastal plain, in an area where deposition of coral reef limestone predominate in the uppermost sedimentary levels. It is a coral outcrop. There is very little soil cover. Streams do not enter or exit the base, and there is only one small pond on the station. The groundwater found on the base is brackish. The groundwater is in direct hydraulic connection with the Pacific Ocean. Below the uppermost coral aquifer, there are several layers of permeable coral limestone separated by less permeable materials. Due to the highly permeable bedrock and poorly developed soils at NAS, any landfill leachates or liquid wastes in the ground can be expected to readily migrate to the water table. Once in the groundwater, contaminants could be subject to mixing, induced by tidal pulses within the brackish water zone. Two factors mitigate the danger posed by the migration potential; the groundwater discharge is probably toward the ocean, and the salinity of the groundwater precludes its use as a domestic water source without pretreatment. Possible degradation of the groundwater under the station is not limited to the NAS activities. The large-scale farming irrigation that have taken place adjacent to the NAS may have affected the groundwater flowing under the installation. Any other solubles applied to the crops or soil might eventually be transmitted under the NAS to the ocean.

NATURAL RESOURCES - Because of the isolation of the islands, there are a great number of animal and plant species that are unique to the Hawaiian Islands. Much of the plant life in the mountain areas is still native, but the vegetation found in the lowlands of Oahu is mostly non-native, due to extensive agriculture, urban development and a number of military installations. Animals native to Hawaii are limited to birds and insects. Two federal and state listed endangered plant species and six "depleted" plant species are present on the base. One endangered bird was observed at the base. Sensitive habitats on-site consist of wetlands, mangrove swamps, the coastal salt flats, the coastal region of Barbers Point, and portions of lowland scrub forest and coastal strand. The land adjacent to the north and east of the base is used for small-scale agriculture and residential developments. Former sugar cane fields have been developed or are currently vacant. There is also an industrial park on the western boundary. A petroleum refinery in the industrial park has, in the past, injected its refinery wastes into a well near the installation boundary. Since the NAS obtains its potable water from a well two miles upgradient of the Station and most of the site-related contaminants do not appear to have migrated very far from the sites, there is little potential for human exposure to contaminants. There is potential for human exposure risk from groundwater contamination and direct soil contact. Since the groundwater flows to the southwest with some westerly gradients, it is assumed that it discharges to the ocean. Groundwater may be used as a drinking water source in the future, but the salinity of the groundwater would make pretreatment necessary.

RISK - A baseline for Human Health Risk Assessment using EPA's guidance for assessing CERCLA sites has been completed for all sites, except Sites 17 and 20, using invalidated data. The Human Health Risk Assessment will be finalized using validated data. An Ecological Risk Assessment will be performed only for Site 2 (Ordy Pond).

The Department of Defense's (DOD's) Relative Risk Ranking system was used to rank the risk factors for 16 of the 19 active sites on the installation in FY95. Three sites were not evaluated at this time, they will be evaluated after further data collection. Four of the 16 evaluated sites at Barbers Point NAS received a "High" relative risk ranking. Three of the four sites had high scores for potential groundwater contamination. Two sites (one site had two high rankings for both media) had high scores for potential soil contamination. Possible receptors of the groundwater and soil contamination include base personnel, visitors, construction workers and the Pacific Ocean. The groundwater is brackish and not used for drinking. Twelve sites received a "Medium" risk ranking.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - In FY94, public involvement at Barbers Point was enhanced with the formation of the Restoration Advisory Board (RAB). The RAB has 17 members, composed of representatives from the State of Hawaii, EPA Region IX, the Redevelopment Commission, the Oahu Civil Defense Agency and members of several community associations. The community associations involved include Friends for Ewa, Save Ewa Beach Ohana, and Hawaii Thousand Friends. Since the RAB was established, the community has become more involved with the cleanup effort. RAB members have been provided copies of the Environmental Baseline Survey (EBS), BRAC Cleanup Plan (BCP), the Community Environmental Response Facilities Act (CERFA) documents, and all Remedial Investigation/Feasibility Study (RI/FS) documents for review. Meetings are held on an "as-needed" basis.

COMMUNITY RELATIONS PLAN - A draft of the Community Relations Plan (CRP) was completed December 1994. The final version of the CRP is on hold.

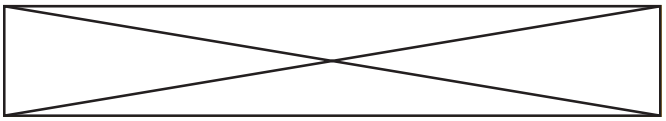
INFORMATION REPOSITORY - The Administrative Record, first established in 1993, has recently been updated and there are three copies available for viewing, one at the installation, one at Naval Facilities Engineering Command, Pacific Division (PACDIV) at Pearl Harbor and an index of documents in the Information Repository. The Information Repository was established in 1992 and is housed at the Ewa Beach Public School and Library, in Ewa Beach, Hawaii.

BASE REALIGNMENT AND CLOSURE

BRAC - Barbers Point NAS was selected for closure by the Base Realignment and Closure Commission (BRAC III) of 1993. Base closure procedures began in September 1993 with the initiation of the EBS and a BCP. Operational closure of the base is set for July 1999. The final property transfer date is estimated to be in FY03, when Removal Actions (RAs) at Site 1 are completed. Some property is expected to be available for transfer as early as FY96. The installation was selected for closure because existing operational units could be transferred to other military installations and still adequately perform the mission requirements.

BRAC CLEANUP TEAM - The BRAC Cleanup Team (BCT) was formed in FY94. The cleanup process was accelerated through BCT meetings, on-site visits and concurrent review of documents, including the EBS, the BCP and CERFA documents.

DOCUMENTS - A BCP and EBS have been completed. The BCT identified 14 sites and three Operable Units (OUs) that required further investigation, in FY95, and the results of these investigations will be summarized in an interim report. Final reports for all sites, except Site 17, investigated under BRAC are expected to be completed in FY96. It is anticipated that following the investigation, several of the sites will require No Further Action (NFA).



LEASE/TRANSFER - The Environmental Condition of the Property (ECP) for the majority of the property at NAS Barbers Point is Category 7, property requiring further evaluation, because no previous investigations have been conducted to verify or deny the presence of potential contamination. The ECP will be adjusted upon completion of the RI/FS activities, which are currently underway. Investigations are expected to identify parcels suitable for transfer. Drums have been removed from sites identified in the EBS.

Barbers Point NAS

REUSE - A draft Land Reuse Plan for the installation is expected to be completed in FY96. All property at the NAS was classified as Category 7 and required further investigation because the installation had not determined whether the groundwater on the base had been impacted by contaminated sites on the base. The classification will not change until the groundwater investigation is complete. The Redevelopment Commission has completed an evaluation of the proposed Federal agency uses of the base property and a draft plan has been prepared dividing portions of the installation into 13 Federal use parcels. The designation of parcel boundaries, and priorities for turnover of the parcels, are being developed by the Redevelopment Commission, with input from other agencies and community groups.

FAST-TRACK INITIATIVES - The Navy is committed to or has implemented the following initiatives to accelerate environmental restoration efforts at Barbers Point NAS: technology review, immediate RAs to eliminate "hot spots", overlapping phases, improved contracting procedures, interfacing with community reuse plan and schedule, emphasizing cleanup over studies, using technical input from experts, and use of innovative management techniques.

HISTORICAL PROGRESS

FY83

Sites 1-9 - A Preliminary Assessment (PA) was completed and nine CERCLA sites were identified. Sites 1-3 were identified for further investigation.

FY87

Sites 4, 6 and 7 - Three sites were listed as Response Complete (RC).

FY88

Sites 2 and 3 - Site Inspections (SIs) were completed, No Further Action (NFA) required.

FY93

Site 1 - An SI was completed and a Remedial Investigation (RI) was required.

FY94

Sites 1, 2, 9, 13 and 20 - A Remedial Investigation/Feasibility Study (RI/FS) was started, with completion expected in FY03.
Site 3 - An RI/FS was started, and expected completion is in FY05.
Sites 5, 8, 10-12, 14, 15, 18 and 22 - An RI/FS was started and completion is expected in FY99.
Sites 10-20, 22 and UST 1 - Another PA, the Environmental Baseline Survey (EBS), was completed. Twelve CERCLA sites and one Underground Storage Tank (UST) site were added.
Site 19 - An RI/FS was started and completion is expected in FY96.

PROGRESS DURING FISCAL YEAR 1995

FY95

Site 16 - All actions were completed and listed as RC.

UST 2 - Interim Remedial Action (IRA) for waste and soil removal was started and completion is expected in FY96.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Site 19 - An RI/FS will be completed.

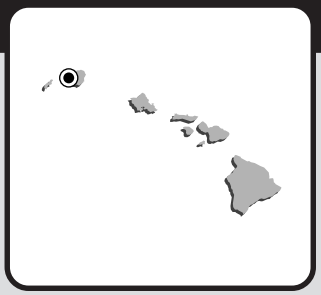
FY97

Site 1 - Two IRAs will start: one for removal of soils contaminated with paint, pesticide, petroleum products, the chemical additive PCB, non-hazardous refuse, solvent, and heavy metals; the other for groundwater treatment for paint, pesticide, petroleum products, the chemical additive PCB, non-hazardous refuse, solvent, and heavy metals contamination. Both IRAs have an expected completion date of FY03.
Site 2 -Two IRAs will start: one for removal of soil contaminated with ordnance compound, scrap metal, and non chlorinated solvents; the other for groundwater treatment for ordnance compound, scrap metal, and non-chlorinated solvents contaminants. Both IRAs have an expected completion date of FY03.
Site 5 - An IRA, for removal of soil contaminated with petroleum products will start. It has an expected completion date of FY99.
Site 8 - An IRA, for capping of site with petroleum products, refuse without hazardous waste, scrap metal, and solvent contaminant will start. It has an expected completion date of FY99.
Site 9 - Two IRAs will start for Site 9: one for removal of soils contaminated with acid, pesticide, petroleum products, the chemical additive PCB, solvent, and heavy metals; the other for groundwater treatment for acid, pesticide, petroleum products, the chemical additive PCB, solvent, and. heavy metals contamination. Both IRAs have an expected completion date of FY03.
Site 10 - An IRA, for in-situ soil treatment for petroleum products, the chemical additive PCB, and heavy metals contamination will start. There is an expected completion date of FY99.
Site 11 - An IRA, for removal of soil contaminated with paint, pesticide, petroluem products, solvent, and heavy metals, will start. There is an expected completion date of FY99.
Site 12 - An IRA, for removal of soil contaminated with blasting grit, pesticide, petroleum products, scrap metal, solvent, and heavy metals will start. There is an expected completion date of FY99.
Site 13 - An IRA, for removal of soil contaminated with petroleum products, PCBs, heavy metals, and chlorinated solvents will start. There is an expected completion date of FY03.
Site 14 - An IRA, for removal of soil contaminated with petroleum products, the chemical additice PCB and heavy metals will start. There is an expected completion date of FY99.
Site 15 - An IRA, for removal of soil contaminated with petroleum products, heavy metals, and chlorinated solvents will start. There is an expected completion date of FY99.
Site 18 - An IRA, for removal of soil with heavy metals contamination will start. There is an expected completion date of FY99.
Site 19 - Long Term Monitoring (LTM) will begin. There is an expected completion date of FY03.
Site 20 - An IRA, for removal of soil with PCB contamination will start. There is an expected completion date of FY03.
Site 22 - An IRA, for capping for asbestos will start. There is an expected completion date of FY99.
UST 2 - A Remedial Action (RA) phase will start. There is an expected completion date of FY98.

BARBERS POINT NAS
PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	21							
SI	3							
RI/FS			1			9		7
RD								
RA								
IRA						9(9)		7(10)
RC	3	1	1			9		7
Cumulative Response Complete	14%	19%	24%			67%		100%
UST	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
ISC	1							
INV								
CAP								
DES								1
IMP					1			1
IRA			1(1)					
RC					1			1
Cumulative Response Complete					50%			100%

Barking Sands Pacific Missile Range Facility
Barking Sands, Hawaii



Engineering Field Division/Activity: PACDIV

Major Claimant: COMNAVAIRSYSCOM

Size: 2,372 Acres

Funding to Date: $2,493,000

Estimated Funding to Complete: $8,433,000

Base Mission: Provides fully instrumented missile ranges and operational and base support facilities for fleet underwater, surface and air training excercises; provides Navy operational and technical evaluation programs to activities

Contaminants: Old fuel, lube oils, hydraulic fuels, lead, battery acid, hydrogen cyanide, Otto fuel

Number of Sites:

CERCLA:	4
RCRA Corrective Action:	0
RCRA UST:	0
Total Sites:	4

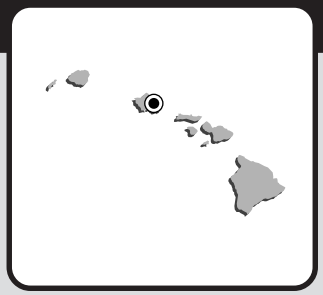
Relative Risk Ranking of Sites:

High:	1	Not Evaluated:	0
Medium:	0	Response Complete:	2
Low:	1	Total Sites:	4

PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	4							
SI	4							
RI/FS		1					1	1
RD								
RA								
IRA							1(1)	1(1)
RC	1	1						2
Cumulative Response Complete	25%	50%						100%

Camp H.M. Smith Oahu
Oahu, Hawaii



Engineering Field Division/Activity: PACDIV

Major Claimant: CMC

Size: 420 Acres

Funding to Date: $809,000

Estimated Funding to Complete: $119,000

Base Mission: Provides housing and training for Marine Corps personnel

Contaminants: PCBs

Number of Sites:

CERCLA:	1
RCRA Corrective Action:	0
RCRA UST:	0
Total Sites:	1

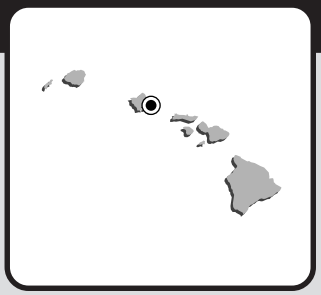
Relative Risk Ranking of Sites:

High:	1	Not Evaluated:	0
Medium:	0	Response Complete:	0
Low:	0	Total Sites:	1

PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	1							
SI	1							
RI/FS								
RD								
RA			1					
IRA			1(1)					
RC			1					
Cumulative Response Complete			100%					

KANEOHE BAY MARINE CORPS BASE
KANEOHE BAY, HAWAII



Engineering Field Division/Activity: PACDIV

Major Claimant: CMC

Size: 2,951 Acres

Funding to Date: $781,000

Estimated Funding to Complete: $25,066,000

Base Mission: Maintains and operates facilities and provides services and materials to support operation of a Marine Corps brigade

Contaminants: Heavy metals (cadium, chromium, lead), POLs

Number of Sites:

CERCLA:	25
RCRA Corrective Action:	0
RCRA UST:	0
Total Sites:	25

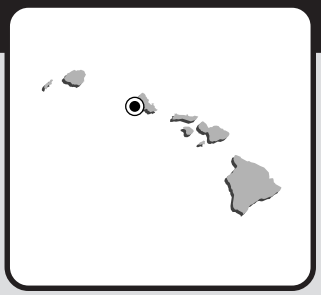
Relative Risk Ranking of Sites:

High:	0	**Not Evaluated:**	2
Medium:	1	**Response Complete:**	18
Low:	4	**Total Sites:**	25

PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	22			1	1		1	
SI	7				1			3
RI/FS								7
RD								7
RA								7
IRA								7(7)
RC	18							7
Cumulative Response Complete	72%							100%

Lualualei Naval Magazine
Lualualei, Hawaii



Engineering Field Division/Activity: PACDIV

Major Claimant: CINCPACFLT

Size: 12,000 Acres

Funding to Date: $634,000

Estimated Funding to Complete: $5,281,000

Base Mission: Receives, renovates, maintains, stores and issues ammunition, explosives, expendable ordnance items, weapons, and technical ordnance material

Contaminants: Unexploded ordnance, solvents, pesticides, acid, POLs

Number of Sites:

CERCLA:	6
RCRA Corrective Action:	0
RCRA UST:	1
Total Sites:	7

Relative Risk Ranking of Sites:

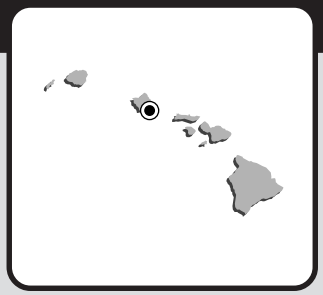
High:	1	Not Evaluated:	1
Medium:	0	Response Complete:	5
Low:	0	Total Sites:	7

PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	6							
SI	3							
RI/FS			1					
RD				1				
RA							1	
IRA								
RC	5						1	
Cumulative Response Complete	83%						100%	

UST	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
ISC								1
INV								
CAP								
DES								
IMP								
IRA								
RC								1
Cumulative Response Complete								100%

Pearl Harbor Naval Complex
Pearl Harbor, Hawaii



Engineering Field Division/Activity:	PACDIV
Major Claimant:	CINCPACFLT/COMNAVSEASYSCOM/COMNAVSUPSYSCOM/ COMNAVFACENGCOM
Size:	2,162 Acres
Funding to Date:	$46,105,000
Estimated Funding to Complete:	$206,217,000
Base Mission:	Provides primary Fleet support in the Pearl Harbor area
Contaminants:	Heavy metals, PCBs, perchloroethylene, pesticides, POLs, Stoddard solvent, volatile and semi-volatile compounds

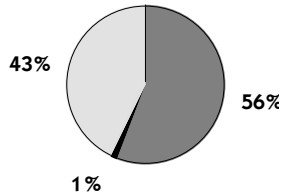
Number of Sites:		**Relative Risk Ranking of Sites:**			
CERCLA:	48	**High:**	36	**Not Evaluated:**	1
RCRA Corrective Action:	21	**Medium:**	1	**Response Complete:**	30
RCRA UST:	1	**Low:**	2	**Total Sites:**	70
Total Sites:	70				

NPL

EXECUTIVE SUMMARY

Pearl Harbor Naval Complex consists of six installations: Naval Station (NS), Public Works Center (PWC), Naval Shipyard (NSY), Fleet and Industrial Supply Center (FISC), Inactive Ship Maintenance Detachment (INACTSHIPDET), and Naval Submarine Base (NSB). The Navy's first installation, NS, was established in 1901. Most landholdings lie within the southern coastal plain of Oahu, west of Honolulu. NS contains maintenance, administrative, supply, and training buildings, bachelor housing, and personnel support facilities. PWC maintains Navy family housing units and utilities systems. NSY provides overhaul, repair, and conversion of surface craft and submarines. FISC includes aboveground and underground fuel storage facilities and a petroleum drumming plant. INACTSHIPDET provides for the inactivation, security, maintenance, cannibalization, disposal, readiness, and preparation for activation of naval ships and craft. NSB is homeport for almost 20 nuclear and conventional submarines, and provides facilities for operations, training, maintenance, housing, and personnel support. These operations have contaminated the soil and groundwater with volatile and semi-volatile organic compounds, heavy metals, the chemical additive PCB, pesticides, petroleum products, and solvents. The Navy has changed its operational processes to prevent further contamination. A Federal Facility Agreement (FFA) was signed in March 1994. EPA Region IX issued a Final RCRA Part B Permit in 1988. Pearl Harbor Naval Complex was included on the National Priorities List (NPL) on 14 October 1992. Dry cleaning solvents from a site located over a drinking water aquifer were primarily responsible for raising the HRS score.

Installations within the Pearl Harbor Complex are situated either at the Harbor itself or at the Pacific Ocean. Adjacent land use remains agricultural, however, fields are gradually being converted to housing and commercial uses. There are four significant wetland habitats in the Pearl Harbor area. Contaminants in this area could potentially migrate slowly toward the harbor or the Pacific Ocean, driven by low groundwater gradients induced by infiltration of local rainfall, or surface water runoff.



Current Status Of Sites

Studies Underway	39
Cleanups Underway	1
Response Complete	30
TOTALS	70

A Technical Review Committee (TRC) was formed in September 1990 and was converted to a Restoration Advisory Board (RAB) in 1994. The Board meets quarterly. A Community Relations Plan (CRP) was completed in June 1992 and updated in January 1996. Three Information Repositories were established in FY90, and an Administrative Record was established in FY92.

All cleanups have been completed at 30 sites. Currently, under CERCLA, 22 Site Inspections (SIs) have been performed, and four are underway. Three Remedial Investigation/Feasibility Studies (RI/FSs) have been completed and 18 are underway. Eleven Interim Remedial Actions (IRAs) have been completed, and 13 are underway.

Of the RI/FSs underway, one is expected to be completed in FY96, two are expected to be completed in FY97, and fifteen others by FY07. Ten more RI/FSs are scheduled and should be completed by FY05. Twenty-three Remedial Designs (RDs) are scheduled through FY08. Twenty-five Remedial Actions (RAs) are expected to be completed by FY20. One IRA is scheduled to begin and end in FY96. Of the IRAs underway, four are expected to be completed in FY96 and nine by FY13. Seventeen IRAs are planned for the future and should be completed by FY06.

Currently, under RCRA, 16 SIs have been performed and none are underway. Six RI/FSs have been completed and nine are underway. No IRAs have been performed or are currently underway. Of the nine RI/FSs underway, six are expected to be completed in FY96 and the other three in FY97. There are no RI/FSs planned beyond that. There are six RD and RAs scheduled through FY00. Twelve IRAs are planned for the future and should be completed by FY05. There is one Underground Storage Tank (UST) site (UST 1) currently undergoing remediation. An RA was initiated and is expected to be completed by FY96.

During the past fiscal year, an innovative technology was used to complete an IRA at the Red Hill Stilling Basin Site, at the FISC. The contaminated materials (sludge and soils) in and around the Stilling Basin consisted of diesel range and heavy-end petroleum products. An innovative low temperature thermal desorption/oxidation technology was used to treat contaminated soil excavated from the site. The Engineering Evaluation/ Cost Analysis (EE/CA) estimates that this treatment method is about one-quarter the cost of disposal at an off-island non-hazardous solid waste disposal facility. This method also provides moderate overall protection of human health and the environment in the least amount of time. This is the first Hawaii Navy Installation Restoration (IR) site to use this technology.

PEARL HARBOR NAVAL COMPLEX
RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - The Hawaiian Archipelago is composed of a series of immense volcanic ridges, the Hawaiian Islands being located at the southernmost end. The island of Oahu is the result of two large shield volcanoes. The caprock in the vicinity of Pearl Harbor is composed of alternating layers of shallow marine limestone and volcanic alluvium. Local fracturing and bedding structures may complicate migration pathways. The Navy installations are underlain by a shallow water table which approximates the elevations of sea level. This groundwater probably migrates generally toward either Pearl Harbor or the Pacific Ocean and is replenished by rainfall infiltration. For near shore areas it is reasonable to assume that waterborne contaminants would reach the harbor. Groundwater in nearshore areas must be subject to some degree of tidal influence, which would result in increased dispersion of contaminants migrating toward the harbor. For inland areas influenced by the Honolulu volcanics, migration pathways are less certain. Contaminants in the shallow groundwater system should eventually reach the harbor or the Pacific Ocean. Several streams cross Navy lands before emptying into Pearl Harbor or the Pacific Ocean. Some groundwater flow may discharge to the streams crossing Navy land. The streams would also constitute possible pathways for potential contaminant migration. Potable water supplies for the Pearl Harbor and Honolulu areas are developed further inland in the Koolau Range basalts. In the Pearl Harbor area, water in the Koolau basalt is confined under artesian pressure by several tens to several hundreds of feet of the caprock sequences. No contamination in the Pearl Harbor area can migrate downward into the artesian system or upgradient to supply areas, except in the Red Hill area, where Koolau basalt is exposed at the surface and not covered by caprock. Water in the basalt aquifer is trapped by the confining layers of the coastal plain caprock, creating an artesian condition. In the early part of the century, numerous wells were drilled in the vicinity to develop increasing water supplies from the artesian portion of the basalt aquifer. Extensive withdrawals eventually caused a decline in the pressure and induced more saline waters to rise into the producing zone. Many wells had to be abandoned. The naval base obtains 70-90 percent of its potable water supply from a water tunnel located in Waiawa. The remainder is supplied by tunnels at Red Hill and Halawa.

NATURAL RESOURCES - In the vicinity of Pearl Harbor, wetland areas support a variety of plant and animal life. There are four significant wetland habitats in the Pearl Harbor area. Sport fish and commercial bait fish are caught in Pearl Harbor. Endangered species in Hawaii include one Hawaiian mammal and 28 Hawaiian birds - more than half of the nation's endangered birds. Threatened or endangered species that may be found near known sites include the plant 'Ewa Plains 'akoka and birds: the Hawaiian coot or 'Alae Ke'oke'o, the Hawaiian duck or Koloa, the Hawaiian gallinule or 'Alae 'ula, the Hawaiian stilt or Ae'o, and the Hawaiian owl or pueo. Pearl Harbor Naval Complex has been designated as a National Historic Landmark.

RISK - There are 36 sites currently ranked with a high relative risk. The high ranking was primarily due to contamination in the soil and marine sediment. There have been various releases of contaminants to the soil. The pathway of concern is direct contact with the soil by humans. Also, contaminants have been identified in the marine sediment of Pearl Harbor. Contaminants reach the harbor via surface runoff or subsurface migration. Pathways of concern are consumption of fish and shellfish by humans and endangered species.

REGULATORY ISSUES

NATIONAL PRIORITIES LIST - Pearl Harbor Naval Complex was included on the National Priorities List (NPL) on 14 October 1992 based on a Hazard Ranking System (HRS) score of 70.82. Dry cleaning solvents from a site located over a drinking water aquifer were primarily responsible for raising the HRS score.

LEGAL AGREEMENTS - A Federal Facility Agreement (FFA) was signed on 17 March 1991 and became effective on 19 July 1991 after a public comment period. The agreement is updated only when new environmental issues arise which require negotiations. The FFA also covers four sites at Lualualei Naval Magazine West Loch Annex which are not currently counted in the Pearl Harbor Naval Complex site count. They are still under NAVMAG Lualualei in Defense Site Environmental Restoration Tracking System (DSERTS). EPA Region IX issued a Final RCRA Part B Permit (HI1170024334) effective 15 September 1988, to operate a hazardous waste storage facility. The permit required that a RCRA Facility Investigation (RFI) work plan be prepared for the 182 Solid Waste Management Units (SWMUs) listed in the RCRA Facility Assessment (RFA) within 450 days after the effective date of the permit. An RFI work plan was completed in December 1989 and was approved by EPA Region IX and Department of the Navy (DON) in 1991. During the development of the RFI work plan, the DON identified 32 additional SWMUs and recommended three of these SWMUs for further investigation. A petition to close the NSY Spent Abrasive Grit Storage Area SWMU was submitted to EPA Region IX in May 1993.

PARTNERING - In 1994, several partnering sessions were held with the installation, the state and EPA Region IX. The partnering relationship resulted in the identification and resolution of problems prior to implementation of work at various sites. The installation also holds meetings with the state to reach a consensus on investigation and cleanup goals, which help expedite the review process and reduce impediments to cleanup.

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - A Technical Review Committee (TRC) was formed in September 1990 and was converted to a Restoration Advisory Board (RAB) in 1994. The board meets quarterly at the Pearl Harbor NSY. There are ten RAB members from the community. Two members represent local neighborhood boards, two members represent environmental interest groups, three members represent elected officials, one member represents a group of employees on the installation, and two members are interested citizens from the local community. The RAB has recommended changes in the scope of an investigation that has helped to identify contamination in an area previously regarded as clean and to prepare a more comprehensive risk assessment. The RAB has also identified the need to initiate work to mitigate possible further migration of contaminants from a site.

COMMUNITY RELATIONS PLAN - A Community Relations Plan (CRP) was completed in June 1992 and updated in January 1996. In addition, a Fact Sheet was completed in September 1990 and revised in August 1992. Several new Fact Sheets have been prepared for TRC/RAB meetings.

INFORMATION REPOSITORY - Three Information Repositories were established in FY90, and an Administrative Record was established in FY92. The Information Repository for the sites within the Pearl Harbor Complex is located at the Aiea Public Library. The Information Repository for sites at outlying areas is located at the Pearl City Public Library. A third Information Repository is located at the Ewa Beach Public and School Library for sites at Naval Magazine Lualualei. The Administrative Record is located at Pacific Division (PACDIV), Naval Facilities Engineering Command. A copy of the Administrative Record documents are contained in the Information Repositories.

PEARL HARBOR NAVAL COMPLEX
HISTORICAL PROGRESS

FY84

Sites 1-30 - An Initial Assessment Study (IAS), equivalent to A Preliminary Assessment (PA), was completed in October 1983. Site 3 is located under Highway 1; clean fill was used to cover the site and no contaminated soil was excavated. The Department of the Navy (DON) has notified EPA of No Further Action (NFA) and the site has been closed out. Sites 5, 6, 9, 11, 12, 14, 15, 20, 23 and 26 were found not to pose a threat to human health or the environment and NFA was recommended. EPA Region IX requested additional investigation for Site 30, but later agreed not to pursue further investigation.
Site 43 (PWC) - This site was originally identified as part of Site 4. However, because the site was a burn area and not a landfill, it was designated as a separate site.

FY87

All SWMUs - A RCRA Facility Assessment (RFA), completed in January by EPA Region IX, identified 182 potential Solid Waste Management Units (SWMUs). Several of the 182 SWMUs are being managed under the Installation Restoration Program (IRP) or the Underground Storage Tank (UST) program, or were recommended for NFA.

FY88

Site 7 (NS) - A Site Inspection (SI) was completed. The report found minimal presence in the soil of the chemical additive PCB and recommended NFA.
Site 4 (PWC) - An SI was completed. Petroleum products in groundwater were significantly below cleanup action guidelines. Petroleum products in sediment were very low or below the detection limit. Biological samples were within expected ranges except for calcium and aluminum. Semi-volatile organic compounds (SVOCs) were found at low concentrations indicating no threat to human health or the environment.
Site 33 (FISC) - A PA was completed in August.

FY89

Site 2 (PWC) - An SI was completed. The report found soil contaminated with pesticides, arsenic, and unidentified organic compounds.
Site 31 (NS) - This additional site was identified during a DON safety inspection.
Site 36 (FISC) - This site was added to the IRP when free floating product was discovered during the installation of new underground tanks.
Site 22 (FISC) - An SI was completed. The report found soil contaminated with petroleum products and SVOCs.
SWMU SB-37 (NSB) - An RFA was completed.

FY90

Site 31 (NS) - An SI was completed. The report confirmed the presence of the organic solvent PCE in the soil.
Sites 35 and 38 (NS) - A PA was completed that identified these two new sites. Site 35 was recommended for further action due to the potential subsurface transport of contaminants. Site 38 was not recommended for further action because there was no indication of hazardous material used or generated at the site.
Site 37 (NSY) - This new site was discovered in 1990. The site consists of a sump in an abandoned building.
Site 36 (FISC) - A PA was completed; the site was recommended for a Remedial Investigation/Feasibility Study (RI/FS) without an SI.
Sites 21, 24 and 27 (FISC) - An SI was completed. The report found evidence of sludge contaminated with petroleum products at Site 21, petroleum products contaminated soil at Site 24, and free product accumulation in a trench, but found no indication that free product had migrated beyond the trench at Site 27. The report recommended that floating product in the trench be removed, and recommended all three sites for an RI/FS.
Site 28 (NSB) - An SI was completed in July. The report found no significant contamination, and the site was recommended for NFA.
SWMU SB-37 (NSB) - A RCRA Facility Investigation (RFI)/Corrective Measures Study (CMS) was initiated.

FY91

Site 31 (NS) - Additional characterization of this site was completed in January 1991 to identify areas of significant contamination requiring a Removal Action (RA). The organic solvents TCE and Stoddard Solvent were detected in soils.
Site 32 (NS) - This additional site was identified during the RA at one transformer station contaminated with the chemical additive PCB. An SI was completed in April. The report confirmed the presence of the chemical additive PCB in the soil at the site. An Interim Remedial Action (IRA) was completed in September. This action involved the excavation and off-site disposal of the presence of PCB in the soil. NFA is anticipated at Site 32.
Site 35 (NS) - An SI was completed in June and petroleum product contamination was confirmed.
Site 39 (FISC) - This new site was identified prior to proposed property transfer to the State of Hawaii.
Site 34 (PWC) - This new site was identified in April upon completion of a Preliminary Assessment/Site Inspection (PA/SI). The report found that the concrete floor under approximately 139 transformers have PCB-contaminated concrete floor slabs. Twelve of these sites have PCB contamination. The remaining 127 sites will be characterized further in an RI/FS.
Site 44 (FISC) - This new site was added due to concerns regarding possible fuel leaks.

FY92

Sites 10 and 13 (NSY) - The Remedial Investigation (RI) field work was completed in June.
Site 19 (NS) - An SI was completed in June. The report confirmed silver, petroleum products, and the chemical additive PCB contamination at the site.
Sites 10, 13 and 16-18 (NSY) - An SI, completed in June, found lead in the soil at Site 10, the chemical additive PCB in sediment at Site 13, metals in soil at concentrations below regulatory action levels at Site 16, concentrations of chromium, lead, and zinc at levels allowable for industrial land use at Site 17. Site 18 could not be located. The SI recommended NFA at Sites 16-18, and further investigation for Sites 10 and 13.
Site 37 (NSY) - A PA was completed in March; the site was recommended for an RI/FS without an SI.
Site 13 (NSY) - An RA involving the removal of sludge and sediment containing the chemical additive PCB was completed in February.
Site 34 (PWC) - An IRA was completed. Transformers with oil containing the chemical additive PCB were removed, fencing was installed around the areas of containment, and a monitoring program was implemented for retrofilled transformers.

FY93

Site 8 (NS) - An SI was completed in September. Sediments were sampled in several locations offshore of Ford Island. Metals, volatile organic compounds (VOCs), petroleum products, pesticides, and the chemical additive PCB were detected in the sediments; metals, volatile organics, and pesticides were detected in the groundwater; and metals, petroleum products, volatile and semi-volatile organic compounds, chlorinated solvents, pesticides, herbicides, and the chemical additive PCB were detected in soils.
Site 4 (PWC) - An Expanded Site Inspection (ESI) was completed in March. The ESI found the chemical additive PCB, the Navy fuel JP-4, benzene, mercury, and lead, and the site was recommended for RI/FS.
Site 39 (FISC) - An SI was completed in January. Test results showed elevated concentration of the chemical additive PCB, petroleum products, the pesticide dieldrin, and heavy metals in the soil. Further investigation and a risk assessment to examine the pesticide dieldrin contamination were recommended. Based on the SI recommendations and the need to

Pearl Harbor Naval Complex

expedite cleanup for the property transfer, DON decided to move directly to Remedial Design/Remedial Action (RD/RA) without an RI/FS. The IRA involving the excavation of soil contaminated with the chemical additive PCB was completed in March.
SWMUs NAS-3, NAS-4 and NAS-6 (NS); SY-5, SY-17, SY-35, SY-44 and SY-84 (NSY); NSC-13, PWC-1, PWC-10, PWC-13 and PWC-15-18 (PWC) - The RFI Report was completed and submitted to EPA Region IX.
SWMU 18 (PWC) - A CMS was completed.

FY94

Site 31 (NS) - An RA was completed in December. This action involved the excavation and off-site disposal of contaminated soil, removal of four USTs, and removal of one drain line.

Sites 40-42 (NSY) - Three new sites were identified by the activity. Site 40 was found during the RI phase. A PA/SI began in June.
Site 43 (PWC) - An SI began in June.
Site 33 (FISC) - An SI was completed; the site was recommended for an RI/FS.
Site 44 (FISC) - A PA was initiated in August.
Sites 19 and 31 (NS) and 33 (FISC) - An RI/FS began.
Site 34 (PWC) - A second RA was initiated to remove contaminated soil.
Site 36 (FISC) - An IRA involving a free floating fuel recovery system was completed in March. A pilot-scale extraction test pumped groundwater and skimmed free product. No hazardous waste was generated because the free product was recovered and recycled in the Navy's Fuel Reclamation Facility.
Site 39 (FISC) - The RA involving the excavation of soil contaminated with the pesticide dieldrin was completed in February.

PROGRESS DURING FISCAL YEAR 1995

FY95

Site 2 (PWC) - An RI/FS was completed. Contamination is minimal.
Site 10 (NSY) - The RI/FS was completed.
Site 44 (FISC) - A PA was completed.
Site 48 (PWC) - A PA was completed.
SWMUs 3 (NS); 5 and 35 (NSY); 32 and 37 (NSB) - CMSs were completed.
Site 50 (NS) - Site 50, the NEX Warehouse site, was added to the IRP in FY95. An IRA was completed. Soil contaminated with petroleum products was removed.

Site 10 (NSY) - Two IRAs were initiated.
Site 13 (NSY) - Two IRAs were completed.
Sites 46 (NSY) and 47 (PWC) - IRAs were initiated.
Site 22 (FISC) - An IRA was completed. It involved the removal and closure of a stilling basin which contained oily wastes, mainly sludge from UST cleaning. The stilling basin structure and the grossly petroleum product contaminated soil beneath and surrounding the stilling basin were removed. Soils were treated by a low temperature thermal desorption facility. Treated soils were returned to the site and used to backfill the excavation. The area was then capped.
UST 1 (NS) - An RA was initiated.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Site 27 (FISC) - Another phase of the RI (involving off site sampling) is expected to be initiated.
Site 22 (FISC) - Phase II of the RI is expected to be initiated.
Site 2 (PWC) - Two IRAs are expected to be initiated.
Sites 40-42 (NSY) - An RI/FS is expected to be initiated.
Sites 10 (NSY) and 33 (FISC) - An IRA is expected to be completed.
Sites 4 (PWC) and 41 (NSY) - An IRA is expected to be initiated.
SWMUs 4 (NS); 40, 44 and 84 (NSY) - An IRA is expected to be initiated.
SWMUs 12, 13 and 26 (NSB); 40, 44 and 84 (NSY) - CMSs are expected to be completed.
UST 1 (NS) - An RA is expected to be completed.

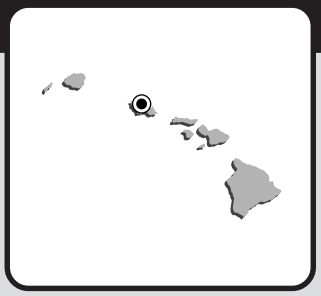
FY97

Site 4 (PWC) - An RI/FS is expected to be completed.**Site 13 (NSY)** - The RI/FS is expected to be completed.
Sites 40-42 (NSY) - A PA and an SI are expected to be completed.
Site 44 (FISC) - An SI is expected to be completed in FY97.
Site 22 (FISC) - An RI/FS is expected to be completed.
SWMUs 1, 10 and 13 (PWC) - A CMS is expected to be completed.
SWMUs 15-18 (PWC) - An IRA is expected to be initiated to remove contaminated soil.

Pearl Harbor Naval Complex
PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	41	2		3				
SI	22			4				
RI/FS		3		2	1			20
RD							1	22
RA								25
IRA	7(8)	2(3)	2(4)		3(3)	2(2)	2(3)	17(17)
RC	18						1	29
Cumulative Response Complete	38%						40%	100%
RCRA CA	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
RFA	21							
RFI	16							
CMS		5	6	3				
DES						6		
CMI						6		
IRA				1(1)				8(8)
RC	7	5				3	3	3
Cumulative Response Complete	33%	57%				71%	86%	100%
UST	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
ISC	1							
INV	1							
CAP								
DES	1							
IMP			1					
IRA			1(1)					
RC			1					
Cumulative Response Complete			100%					

Wahiawa Naval Computer and Telecommunications Area Master Station Eastern Pacific
Wahiawa, Hawaii



Engineering Field Division/Activity: PACDIV

Major Claimant: COMNAVCOMTELCOM

Size: 2,422 Acres

Funding to Date: $2,565,000

Estimated Funding to Complete: $53,701,000

Base Mission: Operates and maintains communications facilities and equipment for Naval shore installations and fleet units in the Eastern Pacific

Contaminants: Metals, petroleum hydrocarbons

Number of Sites:	
CERCLA:	24
RCRA Corrective Action:	0
RCRA UST:	4
Total Sites:	28

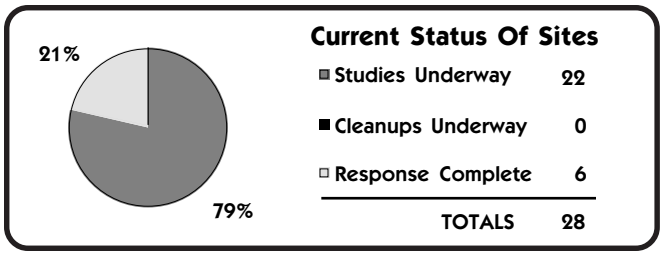
Relative Risk Ranking of Sites:			
High:	16	Not Evaluated:	2
Medium:	1	Response Complete:	6
Low:	3	Total Sites:	28

NPL

EXECUTIVE SUMMARY

Naval Computer and Telecommunications Area Master Station (NCTAMS), Eastern Pacific, EASTPAC is located on the island of Oahu, the third largest of the 132 islands that comprise the Hawaiian archipelago. As the area master station, NCTAMS EASTPAC is tasked with operating and maintaining communications facilities and equipment for naval shore installations and fleet units in the eastern Pacific area. In order to carry out this mission, NCTAMS EASTPAC operates the following facilities: NCTAMS Wahiawa; Naval Radio Transmitting Facility (NRTF) Lualualei, a small satellite communications system (Opana), a microwave relay station at Kokekole Pass; satellite Naval Telecommunications centers at various areas on Oahu, and a special position operator switchboard at Pearl Harbor. Industrial operations are primarily conducted at NCTAMS Wahiawa and NRTF Lualualei, and have been the focus of the Navy's Installation Restoration Program (IRP). At these two facilities, maintenance and operation of electrical transformers and switches has been the primary source of contamination. Transformers containing the chemical additive PCB have resulted in contamination of the soil surrounding electrical transformers. Due to PCB contamination in the soil of working and residential areas (Site 14), NCTAMS EASTPAC was added to the National Priorities List (NPL) on May 31, 1994. Other contamination resulting from operations and maintenance activities include metals, petroleum and Underground Storage Tanks (USTs). The Navy has changed its operational processes to prevent further contamination.

NCTAMS Wahiawa is located on approximately 700 acres of land in the central plateau region of Oahu. Lands adjacent to the station are largely devoted to the cultivation of pineapples. The nearest towns of Wahiawa and Whitmore village each lie approximately one mile southwest and west, respectively, from the station. Due to the heavy rainfall (50 to 60 inches per year) and topography of the station, contaminant migration via surface water is of primary concern. NCTAMS Wahiawa is drained by Poamoho Stream and its tributaries to the west, and North Fork Kaukonahua Stream to the extreme south. The North Fork Kaukonahua Stream empties into the Wahiawa Reservoir which is located less than three miles from the southern edge of the station. NRTF Lualualei occupies approximately 1,700 acres of the Lualualei Valley, which is a large coastal valley near the southwestern shoreline of Oahu. The nearest urban town is the town of Maili, which lies approximately one mile west from the station. The semi-arid conditions, flat to gently rolling topography, and permeable surface soils restrict the runoff from the base. Since there are no known downstream users of the groundwater or surface water, direct exposure to contaminated media is of primary concern.



Since NCTAMS EASTPAC is comprised of two installations, two Restoration Advisory Boards (RABs) have been established. The Wahiawa RAB was established in February 1995, and the Waianae/Lualualei RAB was established in March 1995. The Community Relations Plan (CRP) was finalized in August 1995. Information Repositories have been set up at the Wahiawa and Waianae Public Libraries.

Of the 24 CERCLA sites, five are Response Complete (RC), and the remaining are in the study phase. An Interim Remedial Action (IRA) has been conducted at eight transformer sites (Site 14) to remove PCB-contaminated soils that posed an imminent and substantial endangerment to public health. A public health assessment conducted on Site 14 following this removal action indicated that further removal actions were unnecessary. Of the four UST sites, one is RC, and the rest are in the study phase.

NCTAMS EASTPAC plans a removal action for soils contaminated with the chemical additive PCB at Sites 17, 18 and 20. This accelerated clean up will reduce potential exposure of workers and residents to PCB contaminated soils. Implementation of the Remedial Investigation/Feasibility Study (RI/FS) planning documents at Sites 1 and 5 is scheduled. RI/FS planning documents will be prepared for the remaining Installation Restoration (IR) sites. Design of the remedial system at USTs 5 and 7 will be initiated and completed.

WAHIAWA NCTAMS EASTPAC RELEVANT ISSUES

ENVIRONMENTAL RISK

HYDROGEOLOGY - NCTAMS Wahiawa is located on the east side of the Schofield Plateau in north central Oahu. Most of the station is drained westward by the Poamoho Stream and its tributaries. The extreme southern edge of NCTAMS Wahiawa is drained by the North Fork Kaukonahua Stream less than three miles to the Wahiawa Reservoir. The soils of Wahiawa are derived from weathered Koolau volcanics, and are mostly silty clay or silty clay loam. The soil zone extends down about 20 feet from the surface, where it grades into deeply weathered volcanics of the Koolau range. The Koolau volcanics are mostly basaltic flows in this area. The Schofield groundwater body underlies the Schofield Plateau. The water table at NCTAMS Wahiawa is probably more than 700 feet below the surface. Because of water table depth, underlying clays, and steep ravines edging the property which intercept groundwater, contamination of the deep groundwater is unlikely. The 50 to 60 inches per year of rainfall tends to come in intense tropical cloudbursts, most of which would tend to run off rather than infiltrate the soils. For these reasons, contaminants would more likely migrate by surface water than groundwater pathways. Potable water at this station is supplied by the Army from deep wells at the east end of Schofield Barracks, just south of Wahiawa.

NRTF Lualualei is located on the central west side of Oahu, near the flat center of the Lualualei Valley. This station is drained by Mailiilii Stream on the north side of the base. The semi-arid conditions, flat to gently rolling topography, and permeable surface soils restrict the runoff from the base. The soils and rock underlying NRTF Lualualei consist of coral or calcareous deposits intermixed with alluvium from weathered volcanics of the Waianae Range. Alluvium and other debris in the area of NRTF Lualualei range in depth from less than 75 feet to 1,200 feet before Waianae volcanics are encountered. Groundwater in the area of NRTF Lualualei is shallow and brackish. There are no known downstream users of either groundwater or surface water. Upstream, in the southwest corner of the base, are a series of sewage treatment/oxidation ponds. Potable water is supplied by Naval Magazine (NAVMAG) Lualualei from deep wells in the Waianae Range, which would not be threatened by potential contamination from NRTF Lualualei.

NATURAL RESOURCES - Wildlife associated with NCTAMS Wahiawa and NRTF Lualualei include many exotic species that are commonly found in Hawaii. A 31-acre wildlife refuge has been established at NRTF Lualualei in cooperation with the U.S. Department of the Interior and the state of Hawaii. The area of the refuge which includes the Niulii Reservoir and NRTF oxidation ponds has been identified as habitat for three endangered bird species. An endangered fern is found near the Old NRTF Landfill, Site 13.

RISK - NCTAMS EASTPAC sites have been ranked for risk under the Department of Defense (DOD) Relative Risk System. Under this system, sites are qualitatively ranked High, Medium, or Low relative risk to prioritize sites for funding. Sixteen CERCLA sites have received a high ranking due to soil contamination and potential for direct exposure as well as via surface water and sediment runoff exposure. During Phase I Remedial Investigation/Feasibility Study (RI/FS) work, Human Health and Ecological Risk Assessments will be performed. The Navy has performed a Public Health Assessment on the eight transformer sites following the removal action, and deemed that institutional controls (e.g. fences) and further removal action activities were unnecessary.

REGULATORY ISSUES

NATIONAL PRIORITIES LIST - NCTAMS EASTPAC has been on the National Priorities List (NPL) since May 31, 1994 with a Hazard Ranking System (HRS) score of 50.00. NPL listing was determined by the identification of the chemical additive PCBs in soil surrounding electrical transformers in residential and general work areas at NCTAMS Wahiawa and NRTF Lualualei (Site 14). A removal action was conducted at eight of the transformer sites which presented an imminent and substantial endangerment to public health. In addition to PCB contamination in the soil, elevated levels of lead and mercury have been confirmed at the Old Wahiawa Landfill and Building 6 Disposal Area. Contamination at both sites has the potential to migrate to nearby gulches.

LEGAL AGREEMENTS - A Draft Federal Facility Agreement (FFA) between the EPA Region IX and the Navy was established on 26 October 1994. This document is in the process of being finalized.

PARTNERING - An informal partnering agreement exists between the Navy, EPA Region IX, and State of Hawaii Department of Health. This facilitates implementation of the Navy's Installation Restoration Program (IRP).

COMMUNITY INVOLVEMENT

RESTORATION ADVISORY BOARD - The Technical Review Committee (TRC) has been converted to a Restoration Advisory Board (RAB). Since NCTAMS EASTPAC is composed of two installations, two RABs exist: the Wahiawa RAB and the Waianae/Lualualei RAB. The Wahiawa RAB was established in February 1995, and the Waianae/Lualualei RAB was established in March 1995. Each RAB meets quarterly and is headed by Navy and community co-chairs. RAB meetings are open to the public and announced in newspapers as well as at neighborhood board meetings. Any citizen interested in becoming a community RAB member may apply for membership. Community RAB members vote on the new individual. Currently, each RAB has 24 to 25 permanent community members. The agenda items of the RAB meetings include the Navy's IRP, technical presentation of ongoing environmental work, funding and schedules, and the roles and responsibilities of RAB members.

COMMUNITY RELATION PLAN - The final Community Relation Plan (CRP) was completed in August 1995. Fact sheets are issued prior to RAB meetings. Site tours were conducted at NCTAMS Wahiawa and NRTF on 13 May and 3 June 1995 for RAB members and any other interested personnel.

INFORMATION REPOSITORY - Two Information Repositories were established in 1991. They are located at the Wahiawa Public Library in Wahiawa, HI, and the Waianae Public Library in Waianae, HI. The Administrative Record is maintained by the Navy at three locations: Pacific Division (PACDIV), Naval Facilities Engineering Command, Pearl Harbor, Hawaii, NCTAMS Wahiawa, and NRTF Lualualei.

WAHIAWA NCTAMS EASTPAC HISTORICAL PROGRESS

FY86

Sites 1-14 - An Initial Assessment Study (IAS) was completed. Four sites were recommended for Confirmation Study (CS): Sites 1, 5, 11 and 14. No Further Action (NFA) was recommended for Sites 2-4, 6-10, 12 and 13.

FY89

Sites 1, 5, 11 and 14 - A Site Inspection (SI) was completed. Analysis of soil samples indicated no volatile or semi-volatile organics, there were some petroleum hydrocarbons, and significant quantities of lead and mercury.

FY91

Sites 1, 5, 11 and 14 - An Extended Site Inspection (ESI) was completed. The study recommended implementing a downgradient monitoring program to detect any contaminant migration. Further investigation was recommended for Sites 1 and 5, and NFA for Site 11. The planning documents for Remedial Investigation/Feasibility Study (RI/FS) at Sites 1, 5, 11 and 14 were initiated.

An investigation was conducted for approximately 12 Underground Storage Tanks (USTs) to determine whether any releases had occurred in the past.

FY92

Sites 14-16 - A removal action was completed at Site 14, PCB transformer site. PCB-contaminated soils were removed from eight transformer sites. An SI was completed for Sites 15 and 16. An NFA was recommended for these sites. Approximately eight out-of-service USTs were removed. Four tank areas were identified as contaminated with petroleum hydrocarbons and recommended for site characterization during tank removal.

FY93

USTs 5-8 - An Initial Site Characterization (ISC) was completed for four UST sites (USTs 5-8). A Corrective Action Plan (CAP) was completed for UST 7.
Site 14 - Site 14 was regrouped so that the eight transformer sites which had undergone a Remedial Action (RA) were retained as Site 14, and the remaining transformer sites became Sites 17-19.

FY94

Site 20 - Four additional transformer sites were identified by activity personnel and added to the Navy's Installation Restoration Program (IRP) as Site 20.
Sites 1, 4-6, 10-13, 17, 18 and 20 - The planning documents for RI/FS were initiated.

PROGRESS DURING FISCAL YEAR 1995

FY95

USTs 5 and 6 - CAPs were completed. NFA is required at UST 6 as Response Complete (RC).
Sites 4-6, 10, 12, 13, 17, 18 and 20 - RI/FS planning documents were completed.

Sites 21-24 - New sites were identified for inclusion in the Navy's IRP.
UST 6 - This site was determined to be RC.

PLANS FOR FISCAL YEARS 1996 AND 1997

FY96

Sites 1 and 5 - Remedial Investigation (RI) (implementation of RI/FS planning documents) will begin.
Sites 17, 18 and 20 - A removal action will be initiated to clean up PCB-contaminated soil
USTs 5 and 7 - Design (DES)will be initiated and completed.

FY97

Sites 17, 18 and 20 - An Engineering Evaluation/Cost Analysis (EE/CA), Action Memorandum, and removal action plans and specifications expect to be completed.
USTs 5 and 7 - Implementation of the CAP (IMP) will be initiated and completed.

WAHIAWA NCTAMS EASTPAC PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	17							
SI	9							
RI/FS					5		1	13
RD								3
RA	1							3
IRA					3(3)			
RC	5					3		16
Cumulative Response Complete	21%					33%		100%
UST	**FY94 and before**	**FY95**	**FY96**	**FY97**	**FY98**	**FY99**	**FY00**	**FY01 and after**
ISC	4							
INV			1					
CAP	1	2						
DES			2					
IMP				2				
IRA								
RC		1		3				
Cumulative Response Complete		25%		100%				